

FOR PTO-1390 (Modified)  
(REV 11-2000)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

**TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371**

TIN-0017

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR

**09/868793**INTERNATIONAL APPLICATION NO.  
**PCT/BR99/00107**INTERNATIONAL FILING DATE  
**December 17, 1999**PRIORITY DATE CLAIMED  
**December 21, 1998**

TITLE OF INVENTION

**NEW UTILIZATION OF ALPHA-HIDROXY-PROPIONIC ACID IN MEDICINE**

APPLICANT(S) FOR DO/EO/US

**BENEDITO DA SILVA, ET AL.**

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (24) indicated below.
4. ☒ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
  - a. ☒ is attached hereto (required only if not communicated by the International Bureau).
  - b. ☐ has been communicated by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
  - a. ☐ is attached hereto.
  - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
  - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
  - b. ☒ have been communicated by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☐ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
10. ☐ An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).
11. ☐ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. ☐ A copy of the International Search Report (PCT/ISA/210).

**Items 13 to 20 below concern document(s) or information included:**

13. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☒ A **FIRST** preliminary amendment.
16. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
17. ☐ A substitute specification.
18. ☐ A change of power of attorney and/or address letter.
19. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
20. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
21. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
22. ☒ Certificate of Mailing by Express Mail
23. ☒ Other items or information:

**International Preliminary Examination Report with Annexes, communicated by International Bureau**

TOTAL "E" 33660

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR

09/868793

INTERNATIONAL APPLICATION NO.

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24. The following fees are submitted.:

**BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :**

- ☒ Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO ..... **\$1000.00**
- ☐ International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO ..... **\$860.00**
- ☐ International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... **\$710.00**
- ☐ International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... **\$690.00**
- ☐ International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) ..... **\$100.00**

**ENTER APPROPRIATE BASIC FEE AMOUNT =****\$1,000.00**

Surcharge of **\$130.00** for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (e)).

**\$0.00**

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE
Total claims	15 - 20 =	0	x \$18.00
Independent claims	1 - 3 =	0	x \$80.00
Multiple Dependent Claims (check if applicable).			<input type="checkbox"/>

**\$0.00****\$0.00****\$0.00****TOTAL OF ABOVE CALCULATIONS =****\$1,000.00**

- ☒ Applicant claims small entity status. (See 37 CFR 1.27). The fees indicated above are reduced by 1/2.

**\$500.00****SUBTOTAL =****\$500.00**

Processing fee of **\$130.00** for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (f)).

**\$0.00****TOTAL NATIONAL FEE =****\$500.00**

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) (check if applicable).

☐**\$0.00****TOTAL FEES ENCLOSED =****\$500.00**

Amount to be:  
refunded \$  
charged \$

- a. ☒ A check in the amount of **\$500.00** to cover the above fees is enclosed.
- b. ☐ Please charge my Deposit Account No. \_\_\_\_\_ in the amount of \_\_\_\_\_ to cover the above fees. A duplicate copy of this sheet is enclosed.
- c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. **06-1130**. A duplicate copy of this sheet is enclosed.
- d. ☐ Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. **Credit card information should not be included on this form.** Provide credit card information and authorization on PTO-2038.

**NOTE:** Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

**CANTOR COLBURN LLP**  
55 Griffin Road South  
Bloomfield, CT 06002  
Telephone: 860-286-2929  
Customer No. 23413

SIGNATURE

**Daniel F. Drexler**

NAME

**47,535**

REGISTRATION NUMBER

**June 21, 2001**

DATE

09/868793

JC18 Rec'd PCT/PTO 21 JUN 2001

Express Mail Label #EL718784930US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: BENEDITO DA SILVA, ET AL.

TITLE: NEW UTILIZATION OF ALPHA-HIDROXY-PROPIONIC ACID IN  
MEDICINE

OUR REF: TIN-0017

PRELIMINARY AMENDMENT

The Assistant Commissioner of  
Patents and Trademarks  
Washington, DC 20231

Dear Sir:

Prior to the Examiner acting in the above-referenced application, please  
preliminary amend the specification and claims as follows:

IN THE SPECIFICATION:

Before the first paragraph on the first page, please insert the following section  
heading:

- -TECHNICAL FIELD- -

Between the first and second paragraphs on the first page, please insert the  
following section heading:

- -BACKGROUND OF THE INVENTION- -

Between the fifth and sixth paragraphs on the first page, please insert the  
following section heading:

- -SUMMARY OF THE INVENTION- -

"Express Mail" mailing label number EL71878

Date of Deposit JUN 21, 2001

hereby certify that this paper or fee is being deposited  
with the United States Postal Service "Express Mail  
Post Office to Addressee" service under 37 CFR 1.10  
on the date indicated above and is addressed to the  
Commissioner of Patents and Trademarks, Washington,  
D.C. 20231.

Jennifer Mather  
(Typed or printed name of person mailing paper or fee)

[Signature]  
(Signature of person mailing paper or fee)

Between the seventh and eighth paragraphs on the first page, please insert the following section heading:

- -DETAILED DESCRIPTION OF THE INVENTION- -

IN THE CLAIMS:

Please add the following newly added claims:

2. (Newly Added) A method of using alpha-hydroxypropionic acid as a medicine for treating a respiratory disease, comprising adding the alpha-hydroxypropionic acid to a pharmaceutically acceptable vehicle in a concentration of 0.2-10 vol.% based on the volume of the acceptable pharmaceutical vehicle.
3. (Newly Added) The method as claimed in claim 2, wherein the pharmaceutically acceptable vehicle is selected from the group consisting of 1,2,3-propanetriol, 1,2-propanediol, and serum.
4. (Newly Added) The method as claimed in claim 2, wherein the alpha-hydroxypropionic to be added is 85 vol.% aqueous solution.
5. (Newly Added) The method as claimed in claim 4, wherein 0.2ml-4.0 ml of the aqueous alpha-hydroxypropionic solution is added to a mixture solution of 70ml of 1,2,3-propanetriol and 30ml of 1,2-propanediol.
6. (Newly Added) The method as claimed in claim 2, wherein the respiratory disease includes sinusitis and highairways diseases.
7. (Newly Added) The method as claimed in claim 2, wherein the medicine is used for treating human and veterinarian highairway diseases.

8. (Newly Added) The method as claimed in claim 2, wherein the medicine is used as a nasal releaser.
9. (Newly Added) The method as claimed in claim 2, wherein the medicine is used for treating rhinitis.
10. (Newly Added) The method as claimed in claim 2, wherein the medicine is used as a clearing agent of nasal cavities.
11. (Newly Added) The method as claimed in claim 3, wherein the pharmaceutically acceptable vehicle is 1,2,3-propanetriol.
12. (Newly Added) The method as claimed in claim 3, wherein the pharmaceutically acceptable vehicle is serum.
13. (Newly Added) The method as claimed in claim 3, wherein the pharmaceutically acceptable vehicle is 1,2-propanediol.
14. (Newly Added) The method as claimed in claim 2, further comprising formulating a mixture of the alpha-hydroxypropionic acid and the pharmaceutically acceptable vehicle into a pharmaceutically acceptable form which is adapted to be administered to human and animal.
15. (Newly Added) The method as claimed in claim 14, wherein the pharmaceutically acceptable form includes a solution for intake in drops, spray and a fine powder.

IN THE ABSTRACT:

Please insert the following Abstract on a clean sheet after the claims:

--ABSTRACT

The present invention relates to a composition comprising alpha-hydroxy propionic acid linked to any pharmaceutically acceptable vehicle, such as pure serum, 1,2,3-propanetriol, 1,2-propanediol resp. a mixture thereof or optionally a pharmaceutically acceptable catalyzer. Alpha-hydroxy-propionic acid is used in medicine in many dilutions for the treatment of sinusitis and other upper respiratory diseases. The present invention is characterized by a formulation adapted to nasal delivery for the treatment of upper respiratory disorders.- -

REMARKS

Applicants request entry of the present amendments which conform the claims to U.S. practice. No new matter is being introduced by this Amendment as antecedent support is set forth in the original specification and in the original claims.

Prosecution on the merits is respectfully requested.

The Examiner is invited to contact Applicants' Attorneys at the below-listed telephone number regarding this Preliminary Amendment or otherwise regarding the present application.

If there are any charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130 maintained by Applicants' attorneys.

Respectfully submitted,

BENEDITO DA SILVA, ET AL.

CANTOR COLBURN LLP  
Applicants' Attorneys

By: 

Daniel F. Drexler  
Registration No. 47,535  
Customer No. 23413

Date: June 21, 2001  
Address: 55 Griffin Road South, Bloomfield, CT 06002  
Telephone: 860-286-2929

"NEW UTILIZATION OF ALPHA-HIDROXI-PROPIONIC ACID  
IN MEDICINE"

The present invention is relative to a compound made of alpha-hidroxi-propionic ( or 2-hidroxi-propionic), (compound I), combined with 1,2,3-propanotriol pure (glicerine), or to the 1,2-propanodiol pure or serum, or to a balanced mixture of them or any other acceptable pharmaceutic vehicle, (compound II) to the attaining procedures of such a compound or to its utilization in Medicine.

The invention has got a compound consisted of the alpha-hidroxi-propionic acid (compound I), or to an acceptable pharmaceutic salt of the latter, or of an acceptable pharmaceutic solvato of the latter, or of an acceptable pharmaceutic catalyser of the latter, characterized by the following dilution of:

0,2 to 0,9ml, or 1,1 to 2,0ml, or 2,1 to 3,0ml, or 3,1 to 4,0 ml, or 4,1 to 5,0ml, or 5,1 to 6,0ml, or 6,1 to 10ml of compound I in 100ml of compound II; and 0,3 to 0,8 ml, or 0,4 to 0,7 ml, or 0,2 to 0,5ml, or 0,5 to 0,9 ml, or 1,1 to 1,5ml, or 1,5 to 2,0ml, or 2,1 to 3,0ml, or 3,1 to 4,0ml, or 4,1 to 5,0 ml or 5,1 to 10,0 ml of the active principle of compound I in 100ml of compound II.

Compound I, in one or more of the above-mentioned items combined with compound II is characterized by being suit to the intake in drops, via the nasal airways, or as a spraying solution, a spray, a microfine powder for insufflation or an acceptable pharmaceutic salt or an acceptable pharmaceutic solvate for the medicine addressed to the treatment of the highairways disturbances.

There aren't in the medical and pharmaceutical literatures any statements about the active principle of compound I. On the other hand, there isn't an efficient medicine for the sinusitis treatment. What has been recorded in medical literature so far is the antibiotics massification which, besides its high cost, represents one of the biggest threats to the world public health, due to the development of resistant "cepas" (germs).

It's to be pointed out that the antibiotics massification leads only to the



30 germs fight inside the organism or in its "doorway" when such disturbances are in acute crisis. During those crisis, the germs either in the nasal cavities or in the cheek bones located in external areas of the organism, in close contact with the external environment, aren't reached.

For a biologically active substance to carry out its duty, it's necessary to  
35 be positioned at the action location. The active principles are taken into the body through medicines. Therefore, it's necessary for them to be released in the location where the infectious agents are.

In fact, the antibiotic is a medicine for internal use and that's why it isn't efficient in the sinusitis treatment, taking into consideration that its release doesn't  
40 occur at the infection spot. As known, the sinusitis is an inflammation of the layer of the tissue that internally covers the cheek bones through little holes which communicate with the nasal cavity directly linked to the external environment.

As the application of compound I linked to compound II occurs at the nostrils, such a compound will work directly on the germs located in the nasal  
45 cavities and cheeks.

The first application effect in the nasal cavities and cheek bones of compound I linked to compound II is the "lisar" (dehydrating) of the germs that can be found there through its bactericide and bacteriostatic properties that are in contact .

50 After that, the hydrating and moistening effects of compound I linked to compound II, cause the increase in the nasal mucosa elasticity and its clearance. The action motion of the alpha-hidroxi-propionic acid keeps a more hemogeneous cornea layer, decreasing the superficial cellular cohesion. Those alpha-hidroxi-propionic acids promote a subtle exfoliation, leaving the nasal mucosa smoother  
55 and more homogeneous.

As mediate effects, there are also the modifications of the medium pH, facilitating the "Lactobacyllus acidophyllus" and the "Bifidobacteria" growth. The Bifidobacteria are known for displaying inhibiting effects upon many other

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pathogenic germs, "in vitro" and "in vivo", such as "Candida albicans",  
60 "Shighellas", "Clostridium", "Bacillus cereus", "Staphylococcus aureus", and  
"Campylobacter jejuni", according to the researches of Aann and col. (1985), Tojo  
and col. (1987), Tomoda and col. (1988).

It's known, as well, that the bifidobacteria in the large intestine  
synthesize vitamins that are absorbed by the organism.

65 Bifidobacteria are still known for producing tiamine, riboflavine and  
vitamins B6 and K. It's still proved that the bifidobacteria are able to synthetize the  
complex B vitamins (Mutai, 1978).

In the cheek bones, the compound I linked to compound II changes the  
medium pH, promoting the mucosa hydrating which will speed up the  
70 bifidobacteria growth. The bifidobacteria, by competition, leaves out the  
pathogenic bacteria found there, which are responsible for the cheek bones  
infections. Then, the environmental adaptation to the new pH makes the cheek  
bones prone to the bifidobacteria development, as it occurs in the intestines (Rassic  
- 1989).

75 Well, similarly to the gastrointestinal tract, the respiratory system is open  
to the external environment in order to facilitate the organism breathing. In fact,  
the bifidobacteria and "Lactobacillus acidophyllus" growth in the cheek bones, is  
possible due to the optimum pH, determined by the active principles of compound  
I linked to compound II.

80 Researches believe that the bifidobacteria, by competition, leave out the  
large intestines putrefying bacteria which are responsible for the free radicals  
release. The free radicals, being absorbed, will do the organism a lot of harm, such  
as early aging. (Metchnikoff, 1938 and Linnus Pauling, 1965)

Therefore, the "Lactobacillus acidophyllus" and Bifidobacteria  
85 presences are beneficial to the cheek bones as well as to the intestines. One of the  
Bifidobacteria effects as an effective pathogenic germ inhibitor is associated with  
the production of lactats and acetats in small portions in the mechanism of

reaction in the chemical products resultant from the carbohydrates catabolism. Those elements and the pH inhibit the pathogenic bacteria growth. (Hughes, D.B., Hoover, D.G., BIFIDOBACTERIA, THEIR POTENTIAL FOR USE IN AMERICAN PRODUCTS).

The medicine utilization, represented by compound I linked to compound II is considered only by the otorhinolaryngologist clinics as a salutary alternative to the rhinitis and sinusitis treatment.

Carriers of such diseases feel considerable relief from the very first time they take the referred medicine.

The medicine, represented by compound I linked to compound II, has shown advantages upon any other medicine, for it isn't reabsorbed for being a product of cellular rejects.

At present, the sinusitis is treated with last generation antibiotics, not always with the desired results for not reaching the infection focus, which is inaccessible, and its massification leads to one of the biggest threats to the world public health due to the resistant "cepas" (germs) appearance \_ what would justify this request at once.

The alpha-hidroxi-propionic acid utilization (compound I), linked to the 1,2,3-propanotriol or to the 1,2-propanodiol (compound II) in the sinusitis treatment, besides being a profitable alternative in the treatment of those diseases, will bring huge social and economic benefits to the country.

## REQUESTS

1. "NEW UTILIZATION OF THE ALPHA-HIDROXI-PROPIONIC ACID IN MEDICINE": characterized by a pharmaceutic compound, consisting of the alpha-hidroxi-propionic acid (compound I), or an acceptable pharmaceutic solution of the latter, linked to 1,2,3-propanotriol, or to 1,2-propanodiol, or to serum or any other acceptable pharmaceutic vehicle, (compound II), having in the composition the dilution of: 0,2 to 0,5ml, or 1,1 to 1,9ml, or 2,0 to 3,0ml, or 3,1 to 4,0ml, or 4,1 to 5,0ml, or 5,1 to 6,0ml, or 6,1 to 10ml of compound I in 100ml of compound II; and still 0,3 to 0,8ml, or 0,4 to 0,7ml or 0,5 to 0,9ml, or 1,1 to 1,9 ml, or 2,0 to 2,5ml, or 2,5 to 3,0ml, or 3,1 to 4,0ml, or 4,1 to 5,0ml or 5,1 to 10,0ml of the active principle of compound I in 100ml of compound II.

2. "NEW UTILIZATION OF ALPHA-HIDROXI-PROPIONIC IN MEDICINE", according to request I, characterized by its utilization in the sinusitis and other highairways diseases.

3. "NEW UTILIZATION OF ALPHA-HIDROXI-PROPIONIC IN MEDICINE", according to request I, characterized by its utilization in the human and veterinarian highairway treatment.

4. "NEW UTILIZATION OF ALPHA-HIDROXI-PROPIONIC ACID IN MEDICINE", according to request I, characterized by its utilization as nasal releaser.

5. "NEW UTILIZATION OF ALPHA-HIDROXI-PROPIONIC ACID IN MEDICINE", according to request I, characterized by its dilution in 100ml of 1,2,3-propanotriol (compound II).

6. "NEW UTILIZATION OF ALPHA-HIDROXI-PROPIONIC ACID IN MEDICINE", according to request I, characterized by its utilization as a medication in the sinusitis and rhinitis treatment and as a clearing agent of the nasal cavities.

7. "NEW UTILIZATION OF ALPHA-HIDROXI-PROPIONIC

30 **ACID IN MEDICINE**", according to request I, characterized by its dilution in 100 ml of serum or any other acceptable pharmaceutic vehicle of the latter.

8. **"NEW UTILIZATION OF ALPHA-HIDROXI-PROPIONIC ACID IN MEDICINE"**, according to request I, characterized by its dilution in 100ml of serum or any other acceptable pharmaceutic vehicle of the latter.

35 9. **"NEW UTILIZATION OF ALPHA-HIDROXI-PROPIONIC ACID IN MEDICINE"**, according to request I, characterized bh the dilution in 10ml of 1,2-propanodiol (compound II).

40 10. **"NEW UTILIZATION OF THE ALPHA-HIDROXI-PROPIONIC ACID IN MEDICINE"**, according to request I, characterized by being adapted for intake in drops, via nasal airways, or in the form of a solution for spraying, or a spray, a microfine powder for insufflation or an acceptable pharmaceutic salt of the latter, or an acceptable pharmaceutic solvate of the latter, so that a medicine can be prepared to the treatment of human and veterinarian highairways disturbances.

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## DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my/our name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled NEW UTILIZATION OF ALPHA-PROPIONIC ACID IN MEDICINE the specification of which

(check one)

\_\_\_\_\_ is attached hereto.

X was filed on June 21, 2001 as

Application Serial No. 09/868,793

and was amended on June 21, 2001

(if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, 1.56(a).

I hereby claim foreign priority benefits under title 35, United States Code 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s).

09868793 "100101"

Yes No

Yes No

Yes No

[illegible]

-2-

PROVISIONAL APPLICATION NUMBER

FILING DATE

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

Michael A. Cantor	-	Registration No. 31,152
Philmore H. Colburn II	-	Registration No. 35,101
Keith J. Murphy	-	Registration No. 33,979
Leah M. Reimer	-	Registration No. 39,341
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23413

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(860) 286-2929



I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole

or first inventor: Benedito Da Silva

Inventor's signature: X [Signature]

26-07-01  
Date

Residence: Rua Joaquim Murtinho, 62, Apt. 201, Santo Antonio,  
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Citizenship: Brazil BRX

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CEP-30350-050 Belo Horizonte, Brazil

Full name of second  
joint inventor, if any: \_\_\_\_\_

Inventor's signature: \_\_\_\_\_

\_\_\_\_\_  
Date

Residence: \_\_\_\_\_

Citizenship: \_\_\_\_\_

Post Office Address: \_\_\_\_\_